

r208_dmg

Metadata also available as

Metadata:

- [Identification Information](#)
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 - [Spatial Reference Information](#)
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 - [Distribution Information](#)
 - [Metadata Reference Information](#)
-

Identification_Information:

Citation:

Citation_Information:

Originator:

USDA Forest Service, Rocky Mountain Region, Forest Health Management

Publication_Date: December 10, 2008

Title: r208_dmg

Geospatial_Data_Presentation_Form: vector digital data

Online_Linkage: [<http://www.fs.fed.us/r2/resources/fhm/aerialsurvey/>](http://www.fs.fed.us/r2/resources/fhm/aerialsurvey/)

Larger_Work_Citation:

Citation_Information:

Originator:

USDA Forest Service, Rocky Mountain Region, Forest Health Management

Publication_Date: 1950 to present

Title: Annual Aerial Detection Overview Survey

Edition: 2008

Geospatial_Data_Presentation_Form: vector digital data

Online_Linkage: [<http://www.fs.fed.us/r2/resources/fhm/aerialsurvey/>](http://www.fs.fed.us/r2/resources/fhm/aerialsurvey/)

Description:

Abstract:

2008 USDA Forest Service, Rocky Mountain Region Aerial Detection Survey Data. This data depicts the occurrence and location of forest insect, disease, and other biotic and abiotic causes of tree mortality and tree damage. Aerial survey data is collected by observing areas of tree damage or tree mortality from an aircraft and manually recording the information onto a map.

Due to the nature of aerial surveys, this data will only provide rough estimates of location, intensity and the resulting trend information for agents detectable from the air. Many of the most destructive diseases are not represented in the data because these agents are not detectable from aerial surveys. The data presented should only be used as a partial indicator of insect and disease activity, and should be validated on the ground for actual location and casual agent.

The accompanying "area flown/ not flown" GIS data set entitled "r208_fln" should be

used in conjunction with this data set. This "area flown/ not flown" data set provides information on the spatial extent of the aerial survey for that particular year. A companion handbook entitled "Aerial Survey Geographic Information System Handbook" should be obtained before using this data set. The handbook is available online at: <http://www.fs.fed.us/foresthealth/publications/id/gishandbook.pdf>. This handbook also serves as a data dictionary necessary for deciphering numeric field codes.

Purpose:

Aerial survey data sets are created annually to provide trend information on forest insects, diseases, and other biotic and abiotic causes of tree mortality and tree damage; referred to herein as "damage causal agents". Aerial surveys provide information on the current status for many causal agents, and are important when examining insect activity trends by comparing historical and current survey data over large areas.

Supplemental Information:

Aerial survey data sets are created annually to provide trend information on forest insects, diseases, and other biotic and abiotic causes of tree mortality and tree damage; referred to herein as "damage causal agents". Aerial survey data is collected by observing areas of tree damage or tree mortality from an aircraft and manually recording the information onto a map. This procedure is considered both an art form and a form of scientific data collection, and is highly subjective. An observer only has a few seconds to recognize the color difference between healthy and damaged trees of different species; diagnose causal agents correctly; estimate intensity; delineate the extent of damage; and precisely record this information on a georeferenced map. Air turbulence, cloud shadows, distance from aircraft, haze, smoke, and observer experience can all affect the quality of the survey. These data sets provide estimates of conditions on the ground and may differ from estimates derived by other methods. Aerial surveys provide information on the current status for many causal agents, and are important when examining insect activity trends by comparing historical and current survey data over large areas.

Overview surveys are a "snap shot" in time and therefore may not be timed to accurately capture the true extent or severity of a particular disturbance activity. Aerial surveys can be thought of as the first stage in a multi-stage sampling design. Other remote sensing approaches, including aerial photography, electro-optical sensors, and specially designed aerial surveys with modified flight patterns, can be used to more accurately delineate the extent and severity of a particular disturbance agent. The preceding methods are often more costly than overview surveys, and are generally reserved to address situations of sufficient environmental, economic, or political importance.

Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2008 (summer field season)

Currentness_Reference: publication date

Status:

Progress: Complete

Maintenance_and_Update_Frequency: As needed

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -110.188336

East_Bounding_Coordinate: -100.009366

North_Bounding_Coordinate: 45.112229

South_Bounding_Coordinate: 36.905352

Keywords:

Theme:

Theme_Keyword_Thesaurus: None

Theme_Keyword: aerial survey

Theme_Keyword: aerial detection survey

Theme_Keyword: forest insect pests

Theme_Keyword: forest disease pests

Theme_Keyword: damage causal agent

Theme_Keyword: tree mortality

Theme_Keyword: tree damage

Theme_Keyword: forest health

Theme_Keyword: forest health management

Theme_Keyword: forest health protection

Theme_Keyword: forest health monitoring

Theme_Keyword: USDA Forest Service

Place:

Place_Keyword: Rocky Mountain Region

Place_Keyword: Colorado

Place_Keyword: Wyoming

Place_Keyword: South Dakota

Place_Keyword: Nebraska

Place_Keyword: Kansas

Place_Keyword: Region 2

Temporal:

Temporal_Keyword: 2008

Access_Constraints:

The insect and disease data is available digitally from the USDA Forest Service, Rocky Mountain Region, Forest Health Management group. The cooperators reserve the right to correct, update, modify or replace GIS products. Using this data for purposes other than those for which it was intended may yield inaccurate or misleading results.

The accompanying "area flown/ not flown" GIS data set entitled "r208_fln" should be used in conjunction with this data set. This "area flown/ not flown" data set provides information on the spatial extent of the aerial survey for that particular year.

Use_Constraints:

The insect and disease data is available digitally from the USDA Forest Service, Rocky Mountain Region, Forest Health Management group. The cooperators reserve the right to correct, update, modify or replace GIS products. Using this data for purposes other than those for which it was intended may yield inaccurate or misleading results.

The accompanying "area flown/ not flown" GIS data set entitled "r208_fln" should be used in conjunction with this data set. This "area flown/ not flown" data set provides information on the spatial extent of the aerial survey for that particular year.

Point_of_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization:

USDA Forest Service, Rocky Mountain Region, Forest Health
Management

Contact_Position: Aerial Survey Program Manager

Contact_Address:

Address_Type: physical address
Address: USDA Forest Service
Address: attn: Erik Johnson or Forest Health staff member
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Postal_Code: 80401
Country: USA
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Hours_of_Service: 09:00-16:00 MST

Data_Set_Credit:

USDA Forest Service, Rocky Mountain Region, Forest Health Management

Native_Data_Set_Environment:

Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 2; ESRI ArcCatalog
9.2.6.1500

Data_Quality_Information:

Lineage:

Process_Step:

Process_Description: Metadata imported.

Source_Used_Citation_Abbreviation: C:\a_data\airial_survey\2005
\r205_dmg.shp.xml

Process_Step:

Process_Description: Metadata imported.

Source_Used_Citation_Abbreviation: C:\a_data\airial_survey\2005
\r205_dmg.shp.xml

Process_Step:

Process_Description: Metadata imported.

Source_Used_Citation_Abbreviation: C:\a_data\airial_survey\2006
\r206_dmg.shp.xml

Process_Step:

Process_Description: Metadata imported.

Source_Used_Citation_Abbreviation: C:\DOCUME~1\jross\LOCALS~1
\Temp\xmlE34.tmp

Process_Step:

Process_Description: Dataset copied.

Source_Used_Citation_Abbreviation: F:\2007\r207_dmg

Process_Step:

Process_Description: Metadata imported.

Source_Used_Citation_Abbreviation: C:\DOCUME~1\jross\LOCALS~1
\Temp\xml10.tmp

Process_Step:

Process_Description: Metadata imported.
Source_Used_Citation_Abbreviation: C:\DOCUME~1\jross\LOCALS~1
\Temp\xml12.tmp

Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: G-polygon
Point_and_Vector_Object_Count: 28153

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: Universal Transverse Mercator
Universal_Transverse_Mercator:
UTM_Zone_Number: 13
Transverse_Mercator:
Scale_Factor_at_Central_Meridian: 0.999600
Longitude_of_Central_Meridian: -105.000000
Latitude_of_Projection_Origin: 0.000000
False_Easting: 500000.000000
False_Northing: 0.000000
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: coordinate pair
Coordinate_Representation:
Abscissa_Resolution: 0.000000
Ordinate_Resolution: 0.000000
Planar_Distance_Units: meters
Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222

Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: r208_dmg
Entity_Type_Definition: USDA Forest Service Region 2 2008 forest damage polygons
Entity_Type_Definition_Source:
Aerial Survey Geographic Information System Handbook (available online at:
<http://www.fs.fed.us/foresthealth/publications/id/gishandbook.pdf>)

*Attribute:**Attribute_Label:* FID*Attribute_Definition:* Internal feature number.*Attribute_Definition_Source:* ESRI*Attribute_Domain_Values:**Unrepresentable_Domain:*

Sequential unique whole numbers that are automatically generated.

*Attribute:**Attribute_Label:* AREA*Attribute:**Attribute_Label:* Shape*Attribute_Definition:* Feature geometry.*Attribute_Definition_Source:* ESRI*Attribute_Domain_Values:**Unrepresentable_Domain:* Coordinates defining the features.*Attribute:**Attribute_Label:* ID*Attribute:**Attribute_Label:* CODE*Attribute_Definition:*

Region 2 pest code (see Coding Key for Forest Insect Disease Damage on Aerial Survey Maps USDA Forest Service Region 2 Aerial Survey Program). These are the pest codes that were used by Region 2 aerial surveyors while collecting data from the aircraft. THESE WERE THE ORIGINAL CODES DIGITIZED OFF OF PAPER MAPS OR RECORDED DIGITALLY FROM THE AIR. SOME CODES HAVE BEEN MODIFIED DURING SUBSEQUENT GROUND-TRUTHING ACTIVITIES. THE CHANGES ARE NOT REFLECTED IN THIS FIELD. PLEASE USE THE DCA1, DCA2, AND DCA3 FIELDS FOR QUERIES!

Attribute_Definition_Source:

Coding Key for Forest Insect Disease Damage on Aerial Survey Maps USDA Forest Service Region 2 Aerial Survey Program

*Attribute:**Attribute_Label:* SURVEY_ID1*Attribute_Definition:* Year surveyed (0=2000, 99=1999, etc.)*Attribute_Definition_Source:* Aerial Survey Geographic Information System Handbook*Attribute:**Attribute_Label:* SURVEY_ID2*Attribute_Definition:*

Year surveyed (used only for polygons with more than one attribute)

Attribute_Definition_Source: Aerial Survey Geographic Information System Handbook*Attribute:**Attribute_Label:* SURVEY_ID3*Attribute_Definition:* Year surveyed (used only for polygons with three attributes).*Attribute_Definition_Source:* Aerial Survey Geographic Information System Handbook*Attribute:**Attribute_Label:* DMG_TYPE1*Attribute_Definition:*

Damage type (see Aerial Survey Geographic Information System Handbook, Appendix A)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A

Attribute:

Attribute_Label: DMG_TYPE2

Attribute_Definition:

Damage type (used only for polygons with more than one attribute)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A

Attribute:

Attribute_Label: DMG_TYPE3

Attribute_Definition: Damage type (used only for polygons with three attributes)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A

Attribute:

Attribute_Label: SEVERITY1

Attribute_Definition:

Severity of damage (see Aerial Survey Geographic Information System Handbook, Appendix A)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A

Attribute:

Attribute_Label: SEVERITY2

Attribute_Definition:

Severity of damage (used only for polygons with more than one attribute)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A

Attribute:

Attribute_Label: SEVERITY3

Attribute_Definition:

Severity of damage (used only for polygons with three attributes)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A

Attribute:

Attribute_Label: PATTERN1

Attribute_Definition: Pattern (currently not used by USFS Region 2)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A

Attribute:

Attribute_Label: PATTERN2

Attribute_Definition: Pattern (currently not used by USFS Region 2)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A

Attribute:

Attribute_Label: PATTERN3

Attribute_Definition: Pattern (currently not used by USFS Region 2)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A

Attribute:

Attribute_Label: TPA1

Attribute_Definition:

Number of trees per acre (see Aerial Survey Geographic Information System Handbook, Appendix A)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A

Attribute:

Attribute_Label: TPA2

Attribute_Definition:

Number of trees per acre (used only for polygons with more than one attribute)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A

Attribute:

Attribute_Label: TPA3

Attribute_Definition:

Number of trees per acre (used only for polygons with three attributes)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A

Attribute:

Attribute_Label: NO_TREES1

Attribute_Definition:

Number of trees affected/ killed (see Aerial Survey Geographic Information System Handbook, Appendix A)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A

Attribute:

Attribute_Label: NO_TREES2

Attribute_Definition:

Number of trees affected/ killed (used only for polygons with more than one attribute)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A

Attribute:

Attribute_Label: NO_TREES3

Attribute_Definition:

Number of trees affected/ killed (used only for polygons with three attributes)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A

Attribute:

Attribute_Label: DCA1

Attribute_Definition:

Damage-causing agent code. This is the most reliable field for queries pertaining to damage-causing agents and it is recommended over the R2 pest code or web code fields (see Aerial Survey Geographic Information System Handbook, Appendix A and Appendix E)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A and Appendix E

Attribute:

Attribute_Label: DCA2

Attribute_Definition:

Damage-causing agent code (used only for polygons with more than one

attribute)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A and Appendix E

Attribute:

Attribute_Label: DCA3

Attribute_Definition:

Damage-causing agent code (used only for polygons with three attributes)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A and Appendix E

Attribute:

Attribute_Label: HOST1

Attribute_Definition:

Host tree species code (see Aerial Survey Geographic Information System Handbook, Appendix A and Appendix F)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A and Appendix F

Attribute:

Attribute_Label: HOST2

Attribute_Definition:

Host tree species code (used only for polygons with more than one attribute)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A and Appendix F

Attribute:

Attribute_Label: HOST3

Attribute_Definition:

Host tree species code (used only for polygons with three attributes)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A and Appendix F

Attribute:

Attribute_Label: FOR_TYPE1

Attribute_Definition:

Forest type code (see Aerial Survey Geographic Information System Handbook, Appendix A and Appendix G)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A and Appendix G

Attribute:

Attribute_Label: FOR_TYPE2

Attribute_Definition:

Forest type code (used only for polygons with more than one attribute)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A and Appendix G

Attribute:

Attribute_Label: Notes

Attribute:

Attribute_Label: ACRES

Attribute_Definition: Acres (calculated using XTOOLS)

Attribute:

Attribute_Label: FOR_TYPE3

Attribute_Definition: Forest type code (used only for polygons with three attributes)

Attribute_Definition_Source:

Aerial Survey Geographic Information System Handbook, Appendix A and Appendix G

Attribute:

Attribute_Label: NOTES

Attribute_Definition: Notes and comments

Attribute_Definition_Source: Aerial Survey Geographic Information System Handbook

Attribute:

Attribute_Label: PERIMETER

Attribute:

Attribute_Label: HECTARES

Attribute:

Attribute_Label: RPT_YR

Attribute:

Attribute_Label: WEBCODE

Overview_Description:

Entity_and_Attribute_Overview:

While the companion handbook entitled "Aerial Survey Geographic Information System Handbook" (available at

[<http://www.fs.fed.us/foresthealth/publications/id/gishandbook.pdf>](http://www.fs.fed.us/foresthealth/publications/id/gishandbook.pdf)) should be obtained before using the dataset in order to decipher numeric field codes, some of the more common Region 2 DCA (damage causal agent) and host codes are listed as follows:

DCA NAME 11002 western pine beetle 11006 mountain pine beetle 11007 Douglas-fir beetle 11009 spruce beetle 11029 pine engraver 11030 Ips engraver beetles 11049 Douglas-fir engraver 11050 fir engraver 12040 western spruce budworm 12123 Douglas-fir tussock moth 12180 tent caterpillar 24022 Dutch elm disease 30000 Fire 50006 hail 50001 wind/tornado 70001 herbicides 70014 road salt 80001 aspen decline 80002 subalpine fir mortality 80003 five-needle pine mortality 80004 pinyon pine mortality

Hosts 1 = hardwoods 2 = softwoods 3 = hardwoods/softwoods 15 = white fir 19 = subalpine fir 68 = eastern redcedar 93 = Englemann spruce 101 = whitebark pine 105 = jack pine 106 = common pinyon 108 = lodgepole pine 113 = limber pine 122 = ponderosa pine 202 = Douglas-fir 313 = boxelder 462 = hackberry 740 = cottonwood, poplar 746 = quaking aspen 749 = narrowleaf cottonwood 814 = Gambel oak 823 = bur oak 970 = elm

Due to the difficulty of discerning dying whitebark pine from dying limber pine from the air, all of these polygons are originally coded as "5-needle pine mortality" by the sketchmapper. Later, the hosts for these polygons are determined using the following procedure:

1. Select potential whitebark sites: ("DCA1" = 80003 OR "DCA2" = 80003 OR "DCA3" = 80003) AND ("HOST1" = 101 OR "HOST2" = 101)
2. Potential whitebark sites fall within 50m of whitebark polygons from local vegetation datasets are recoded whitebark only.
3. Potential whitebark polygons that occur below 8,000 ft were recoded as limber pine only.
4. Remaining polygons (>8,000ft elevation and not

within 50m of whitebark poly) were left as is (coded both 101 and 113) coded mixed-except changing TPA (and # of trees) to reflect a 50/50 split.

In 2008 a new method was devised for recording aspen. For a complete description of the methods devised, please download the document adm_ads_methods available on the R2 aerial survey data download website page.

75 -aspen dieback with no mortality = (SEVERITY1 = -1 AND DCA = 80001) OR (SEVERITY2 = -1 AND DCA2 = 80001) OR (SEVERITY3 = -1 AND DCA3 = 80001)

75-L -aspen dieback with light to moderate mortality = (SEVERITY1 = 1 AND DCA = 80001) OR (SEVERITY2 = 1 AND DCA2 = 80001) OR (SEVERITY3 = 1 AND DCA3 = 80001)

75-H -aspen dieback with heavy mortality = (SEVERITY1 = 2 AND DCA = 80001) OR (SEVERITY2 = 2 AND DCA2 = 80001) OR (SEVERITY3 = 2 AND DCA3 = 80001)

Entity_and_Attribute_Detail_Citation:

Aerial Survey Geographic Information System Handbook
(<http://www.fs.fed.us/foresthealth/publications/id/gishandbook.pdf>)

Entity_and_Attribute_Detail_Citation:

Coding Key for Forest Insect Disease Damage on Aerial Survey Maps USDA Forest Service Region 2 Aerial Survey Program (contact Erik Johnson ejohnson02@fs.fed.us or Jennifer Ross jross@fs.fed.us for this document)

Distribution_Information:

Distributor:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization:

USDA Forest Service, Rocky Mountain Region, Forest Health Management

Contact_Position: Aerial Survey Program Manager

Contact_Address:

Address_Type: mailing and physical address

Address: USDA Forest Service, Rocky Mountain Region

Address: Erik Johnson (or Forest Health staff member)

Address: 740 Simms Street

City: Golden

State_or_Province: Colorado

Postal_Code: 80401

Country: USA

Contact_Voice_Telephone: 303.236.8001

Contact_Voice_Telephone: 303.275.5061

Contact_TDD/TTY_Telephone: 800.659.2656

Contact_Facsimile_Telephone: 303.236.9542

Contact_Facsimile_Telephone: 303.275.5075

Contact_Electronic_Mail_Address: jross@fs.fed.us

Contact_Electronic_Mail_Address: fjcross@fs.fed.us

Contact_Electronic_Mail_Address: jharris@fs.fed.us

Hours_of_Service: 0900-1600 MST

Resource_Description: Downloadable Data

Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Transfer_Size: 12.004

Metadata_Reference_Information:

Metadata_Date: 20090212

Metadata_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization:

USDA Forest Service, Rocky Mountain Region, Forest Health
Management

Contact_Person: Jennifer Ross

Contact_Position: GIS Specialist

Contact_Address:

Address_Type: mailing and physical address

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City: Golden

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Postal_Code: 80401

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Contact_Facsimile_Telephone: 303.236.9542

Contact_Facsimile_Telephone: 303.275.5075

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Hours_of_Service: 0900-1600 MST

Contact_Instructions: email preferred

Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata_Standard_Version: FGDC-STD-001-1998

Metadata_Time_Convention: local time

Metadata_Extensions:

Online_Linkage: <<http://www.esri.com/metadata/esriprof80.html>>

Profile_Name: ESRI Metadata Profile

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